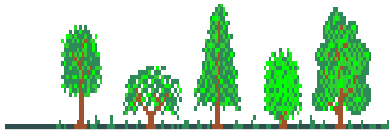
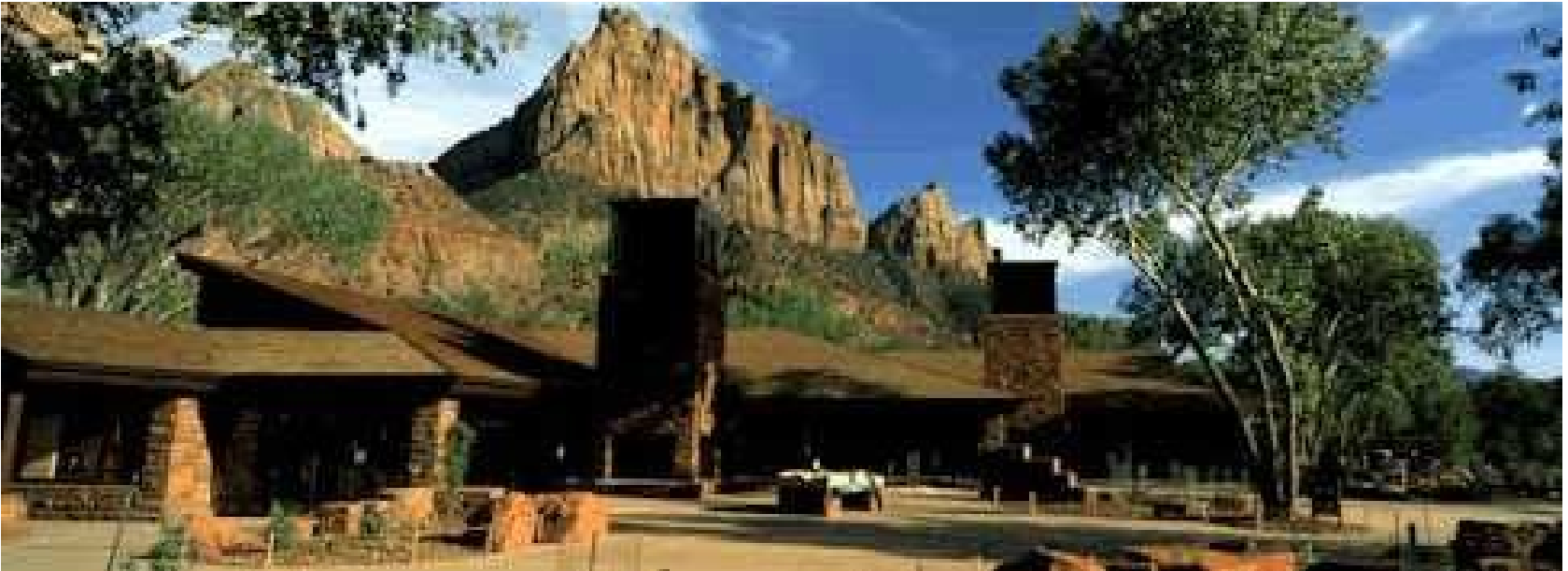


Green Building Photo Tour

- Overview of three case studies from the DOE High Performance Buildings Database
 - Each case study entry includes information on the process, the team, the technical “green” features, and lessons learned
 - We won’t go over all these items today
- http://www.eere.energy.gov/buildings/high_performance/case_studies/



Zion National Park Visitors Center

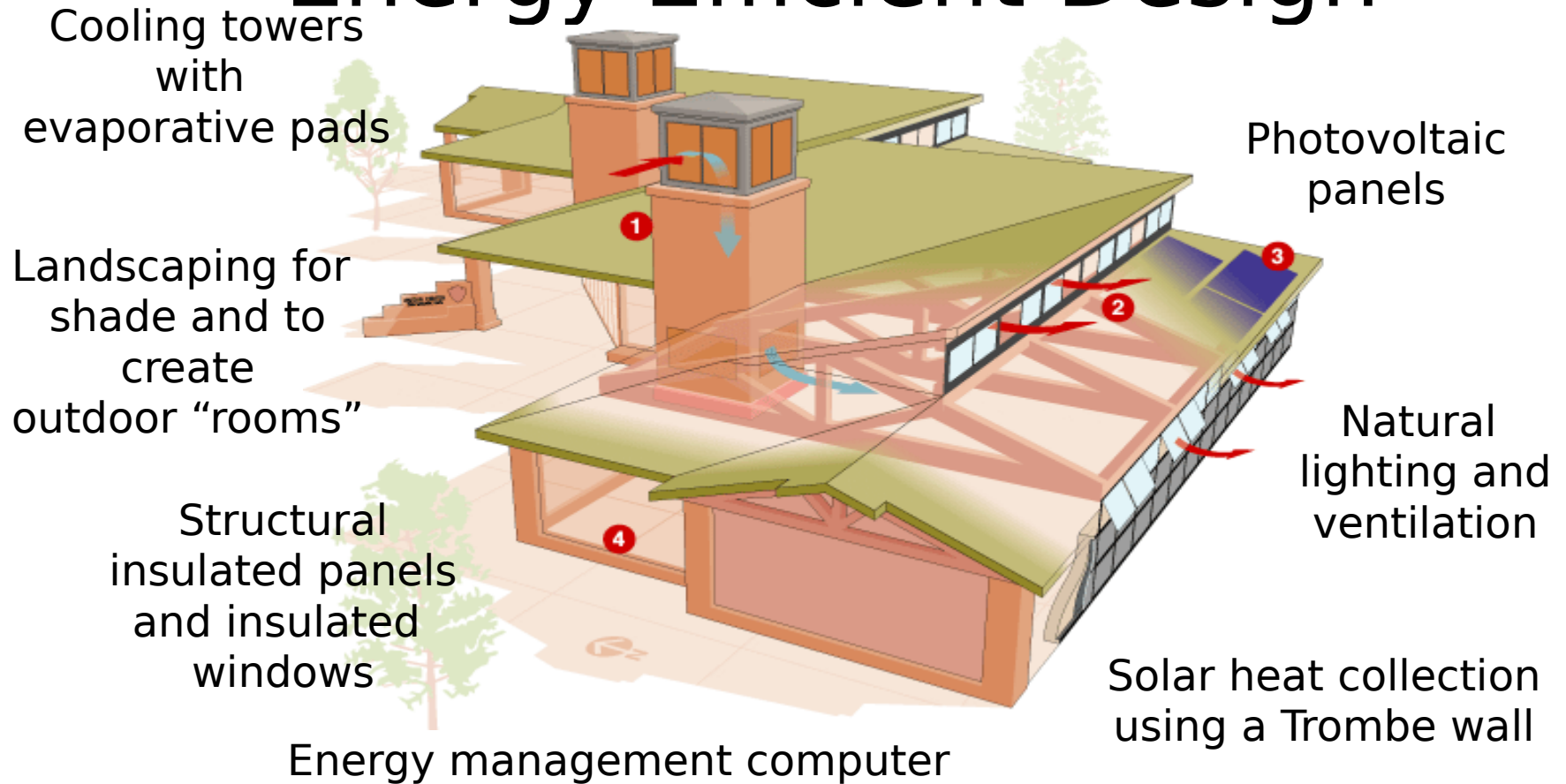


Key elements of the design strategy included:

- Energy savings through efficient use / renewable sources
- Transportation planning

Zion National Park Visitor Center

Energy Efficient Design



Technical assistance provided by the National Renewable Energy Laboratory

RESULT: 70% ENERGY SAVINGS AT NO ADDITIONAL COST



Zion National Park - Visitors Center

During the design of the Visitor Center, the building's cooling system and architecture were integrated through downdraft cooltowers, shown here.



Zion National Park - Visitors Center

Outdoor "rooms" for permanent displays allow for a smaller building design as well as lower capital and operation costs.



Zion National Park - Visitors Center

This photo shows the southern exposure of the Visitor Center, a well-suited location for Trombe walls that provide most of the building's heat as well as a 7.2 kW PV array.

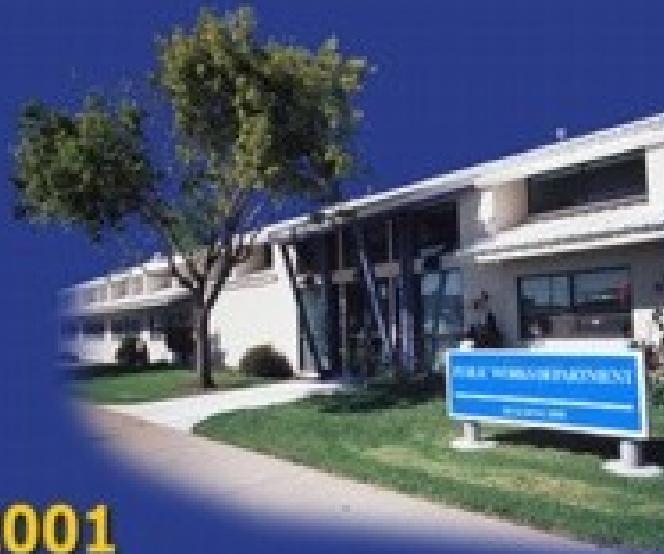


1996

BUILDING 850 EVOLUTION



2001



Building 850 Port Hueneme, CA

Naval Base Ventura
County Public Works
Department

These photos show
the exterior of
Building 850 in 1996,
before the
renovation, and in
2001, upon
completion.

BUILDING 850 WATER CONSERVATION



XERISCAPE & RAINWATER COLLECTION

Building 850 Port Hueneme, CA

Site and Water Strategies:

Xeriscaping, rainwater collection, a graywater recovery system, and low-flow fixtures help to conserve water in and around Building 850.



**GRAYWATER
RECOVERY
SYSTEM**



**LOW-FLOW
FIXTURES**

BUILDING 850 RENEWABLE ENERGY



30 kVa Photovoltaics Array

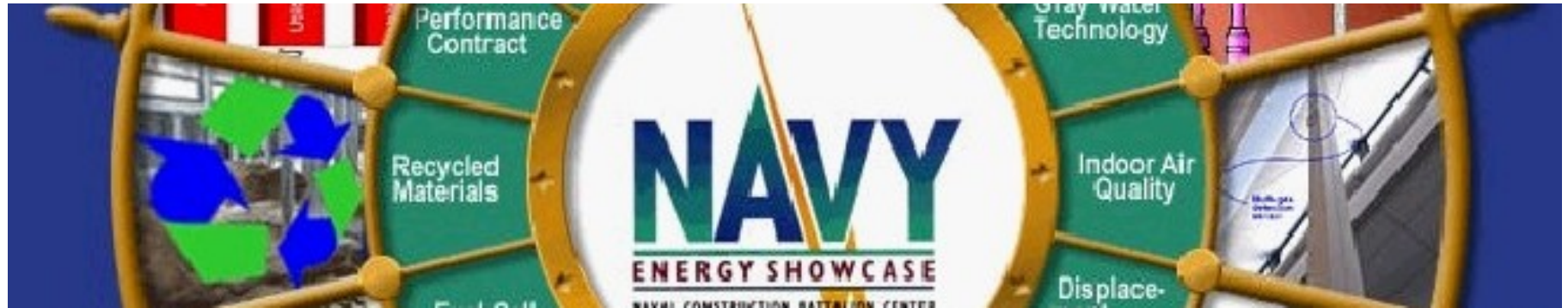


Solar thermal hot water array

Building 850 Port Hueneme, CA

Energy Strategies:

These photos show the 30 kVa photovoltaic array as well as the solar thermal hot water array



Building 850 - Port Hueneme, CA

Strategies for Resource Efficiency and Material Selection:

- Design for adaptability (raised flooring)
- Job-site recycling of construction and demolition waste
- Use materials with recycled content
- Reusable components
- Low-emitting materials for good indoor air quality
- Local materials with reduced transportation impacts
- Minimize ODS use in cooling systems

BUILDING 850 COMFORTABLE WORK ENVIRONMENT



OPERABLE WINDOWS



DIRECT DIGITAL CONTROLS



DAYLIGHTING
MONITORS & LIGHT SHELVES

Building 850 Port Hueneme, CA

Indoor Environmental Quality:

Optimized daylighting, natural ventilation, and reduced pollution sources enhance the indoor environment.



Pennsylvania DEP - Cambria District Office

Location: Ebensburg, PA

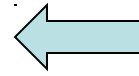
100% new construction

36,000 sq. feet – approx 125 occupants

2-story building in a suburban setting

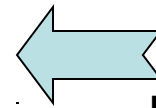
Completed October 2000

Rating: LEED 2--Level: **Gold** (45 points)



This photograph shows how the fourth-generation design of light shelves on south-facing windows increases indirect lighting levels.

Pennsylvania DEP - Cambria District Office Daylighting Strategies



The table in this photograph, which is used for map-reading, is lit by natural daylight.



Pennsylvania DEP - Cambria District Office

Energy Strategies

Paul Torcellini of NREL examines the 14.3 kW PV system on the roof that offsets some of the power use of the building.



Air handling units like the one in this photograph provide ventilation make-up air separate from conditioned air, allowing air conditioning equipment to be shut off when not needed.



Pennsylvania DEP

-

Cambria District Office

Water conservation measures were used both indoors and outdoors:

- Plumbing fixtures
- Zero-irrigation landscaping

DoD LEED Certified Projects

These aren't in the DOE Database (yet):

- Navy Bachelor Enlisted Quarters at Great Lakes Training Center
LEED version 1, Certified (1999)
- Barksdale AFB Fitness Center
LEED version 1, Certified (2002)
- Pentagon Metro Entrance Facility - *LEED version 2, Certified (2003)*



For more information:

https://www.usgbc.org/LEED/Project/project_list.asp

and

<http://renovation.pentagon.mil/sustainabledesign.htm>

That's the end of the tour...

Is this the Ultimate Green Building Project?

off the mark

by Mark Parisi

www.offthemark.com

